

Math 70 Quiz #8 Answers

1. (a) Unknown: $r =$ Average rate of the train (speed)

Equation: $960 = r(30)$ (Using $\text{dist.} = \text{rate}(\text{time})$ with distance = 960 miles, time = 30 hours)

Solving the equation: $r = \frac{960}{30} = 32$ miles per hour

The average speed is approximately 32 mph.

- (b) Unknowns: Number of movies with Timothy = t
Number of movies with Sean = $3t$
Number of movies with Roger = $t + 5$

Equation: Number of + Number of + Number of = 15
 Sean C. Roger M. Timothy D.
 movies movies movies

$$3t \quad + \quad t + 5 \quad + \quad t \quad = 15$$

$$\Rightarrow 3t + t + 5 + t = 15$$

$$5t + 5 = 15$$

$$5t = 10 \quad (\text{Subtract 5 from both sides.})$$

$$t = 2 \quad (\text{Divide both sides by 5.})$$

Timothy starred in 2 Bond movies. Sean starred in 6 Bond movies. Roger starred in 7 Bond movies.

2. $5^{10} \cdot 5^7 = 5^{17}$ (Using the product rule of exponents.)